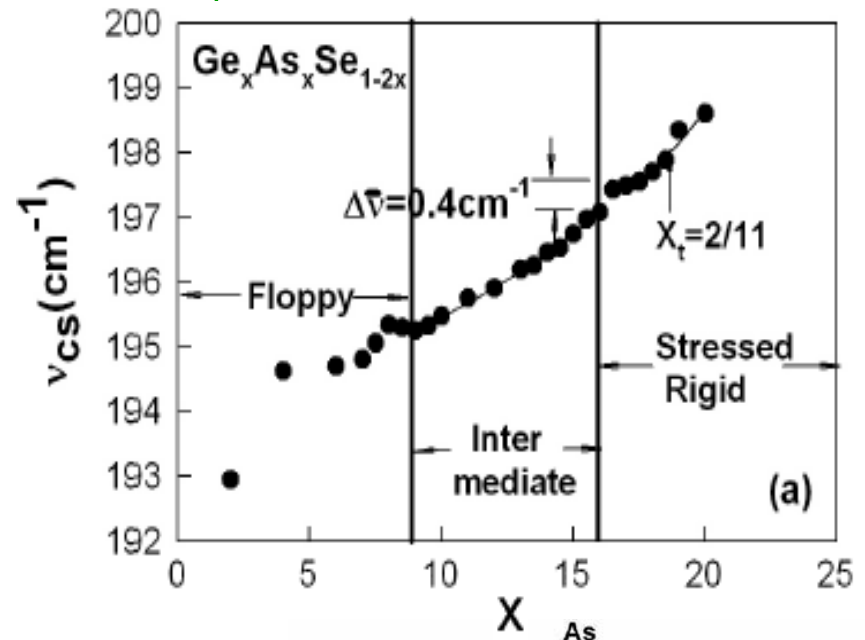
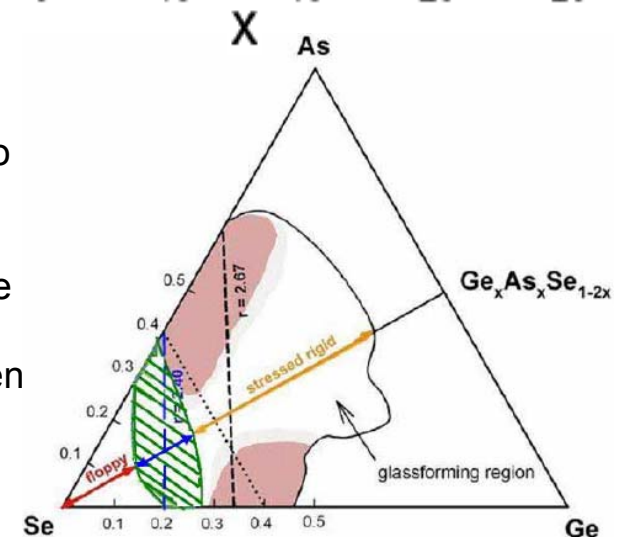


# Acquisition of an FTIR/Raman system to study Self-Organization Effects in Network Glasses

P. Boolchand, University of Cincinnati, DMR-0315491



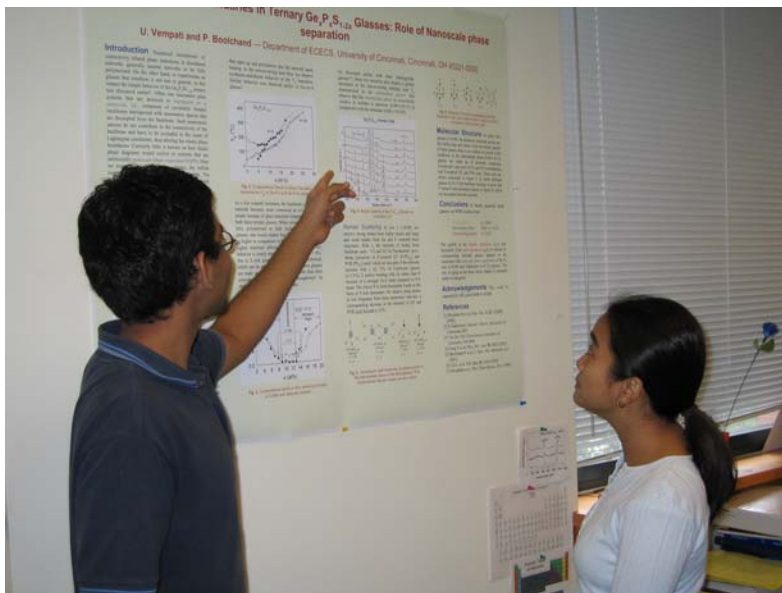
A Nicolet FTIR 860 Bench with a Raman attachment (above) is used to measure vibrational modes of characteristic local structures in network glasses. In ternary  $\text{Ge}_x\text{As}_x\text{Se}_{1-2x}$  glasses (graph) vibrational frequency of  $\text{GeSe}_4$  tetrahedra with glass composition show two thresholds; one near  $x = 0.09$  and the other near  $0.16$ , defining an *intermediate phase*. Such glasses are viewed to be self-organized. In the triangle, the green shaded region describes glass compositions that are *self-organized*. Such glasses do not age and are of interest in photonic applications.



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**Education.** The instrumentation has made feasible Ph.D. Thesis projects of *Tao Qu* (Nokia), *Fei Wang* (Cal Poly), and M.S. Thesis projects of *Swapnajt Chakravarty* (Univ. Michigan).



Current users (top) of the instrument include *Udaya Vempati* (MS), *Vamsikrishna Rompicharla* (MS), *Deassy Novita* (Ph.D.) *Ping Chen* (Ph.D.) and *Cristina Burcica* (Ph.D.) Shown on the *left* is *Udaya*, discussing his poster with *Deassy*.